REMARKS

Claims 1-15 were presented for examination and were rejected.

Applicant has amended claims 1 and 14 to incorporate the features of cancelled claim 3; claim 13 as previously presented already specified this feature. Applicant has amend claim 7 to be an independent claim, and also added new independent claims 16 to 18. Applicant has additionally amended claim 8 to correct an antecedent basis error. Support for the amended claims can be found in the specification as filed as set out below.

Claim no.	Location of support
1	Original Claim 3
7	Original claims 7 and 3
8	Page 9, lines 6-7
14	Original claims 14 and 3
16	Page 6, lines 22-23 and original claim 3
17	Page 6, lines 28-30 and page 8, lines 13-15
18	Page 10, line 19

Claim 3 has been canceled without prejudice, and the applicant respectfully reserves the right to re-present this claim in this or another application.

The applicant respectfully requests reconsideration in light of the amendments and the following comments.

35 U.S.C. § 103 Rejection of Claims 1-8 and 10-15

Claims 1-8 and 10-15 were rejected under 35 U.S.C. § 103 as being unpatentable over S.S. Taylor, U.S. Patent 6,888,409 (hereinafter "Taylor") in view of Sivonen et al., U.S. Patent 6,963,247 (hereinafter "Sivonen").

Claim 1, as amended, recites:

> **1.** A power amplifier for driving a load, the power amplifier further comprising a resistive element connected at an output of the power amplifier to maintain a low impedance at the output across a range of operational frequencies, wherein *the output is adapted for connection to a modulated power supply*.
>
> (*emphasis supplied*)

Neither Taylor nor Sivonen teach or suggest, alone or in combination, what amended claim 1 recites — namely that the output is adapted for connection to a modulated power supply.

The Examiner admits that the difference between the invention and Taylor is the resistive element claimed. The Examiner also asserts that this feature is found in Sivonen and that a combination of Taylor and Sivonen renders the invention obvious.

However, by specifying the limitation that the output is adapted for connection to a modulated power supply, claims 1, 13, and 14 are placed in the technical field of power amplifiers for connection to a modulated power supply. As stated in the specification of the application, the invention solves the problem of a high Q resonance of an impedance presented to a modulated power supply making high-bandwidth modulation very difficult (page 1, lines 15-17). The problem solved by the invention relates to providing high-bandwidth modulation and is specific to power amplifiers for use with modulated power supplies.

In seeking to solve the stated problem, the skilled person would not think to combine Taylor with Sivonen, as Sivonen is not related to amplifiers for use with modulated power supplies. Rather, Sivonen is related to gain stabilization in **narrow-band**, low noise amplifiers. In specifying the narrow-band requirement, Sivonen leads the skilled person away from its teaching as the skilled person is seeking to provide **high-bandwidth** modulation.

The applicant therefore submits that the invention as claimed in claims 1, 13, and 14 is novel and non-obvious in view of the cited art, as the skilled person would not look to Sivonen to provide the resistive element of these claims.

For these reasons, the applicant respectfully submits that the rejection of claim 1 is overcome.

Because claims 2-6 and 12 depend on claim 1, the applicant respectfully submits that the rejection of them is also overcome.

Claim 7, as amended, recites:

> **7.** A power amplifier for driving a load, the power amplifier further comprising a reactive element connected in series with *a resistive element connected at an output of the power amplifier* to maintain a low impedance at the output across a range of operational frequencies, wherein *the output is adapted for connection to a modulated power supply*, and wherein said reactive element *comprises a capacitive element or an inductive element in series with a capacitive element*.
>
> (*emphasis supplied*)

The applicant has amended claim 7 such that it is an independent claim directed toward a reactive element connected in series with a resistive element connected at an

output of the power amplifier, wherein the reactive element is a capacitive element or an inductive element in series with a capacitive element. The applicant has further added the features of cancelled claim 3.

As explained above for claims 1, 13, and 14, claim 7 is non-obvious in view of the cited art by virtue of the limitation that the power amplifier is adapted for connection to a modulated power supply. Further, neither Taylor nor Sivonen, alone or in combination, disclose a series resonant circuit comprising a capacitive element or an inductive element in series with a capacitive element and a resistive element connected to an output of a power amplifier.

As stated in the specification at page 6, lines 26-27, the invention provides a solution to the stated technical problem by providing a second resonant network. The resonant network comprises, in series, i) an inductor, ii) a capacitor, and iii) a resistor (page 8, lines 14-15); the inductor may be removed (page 9, lines 1-2). Based on the disclosures of the prior art, the inclusion of such a feature to solve the stated invention would not be obvious as neither Taylor nor Sivonen disclose or suggest the series resonant network of claim 7. The applicant therefore submits that claim 7 is novel and non-obvious in view of the cited art.

For these reasons, the applicant respectfully submits that the rejection of claim 7 is overcome.

Because claims 8, 10, and 11 depend on claim 7, the applicant respectfully submits that the rejection of them is also overcome.

Claim 13 recites:

> **13.** A power amplifier circuit for driving a load, the power amplifier circuit further comprising:
>
> a transistor for receiving a signal to be amplified at an input and for outputting an amplified signal at an output;
>
> *a modulated power supply connected to the transistor output*; and
>
> a resistive element connected at the transistor output such that a low impedance is maintained at the transistor output across a range of operational frequencies.
>
> (*emphasis supplied*)

Neither Taylor nor Sivonen teach or suggest, alone or in combination, what claim 13 recites — namely *a modulated power supply connected to the transistor output* of the power amplifier circuit.

Please refer to the applicant's response above and with respect to the rejection of claim 1. For similar reasons, the applicant submits that claim 13 is novel and non-obvious in view of the cited art, and respectfully submits that the rejection of claim 13 is traversed.

Claim 14, as amended, recites:

> **14.** A method of maintaining a low impedance across a range of operational frequencies in a power amplifier for driving a load, the method comprising providing a resistive element at an output of the power amplifier, wherein *the output is adapted for connection to a modulated power supply*.
>
> (*emphasis supplied*)

Neither Taylor nor Sivonen teach or suggest, alone or in combination, what amended claim 14 recites — namely that the output is adapted for connection to a modulated power supply.

Please refer to the applicant's response above and with respect to the rejection of claim 1. For similar reasons, the applicant submits that claim 14 is novel and non-obvious in view of the cited art, and respectfully submits that the rejection of claim 14 is overcome.

Because claim 15 depends on claim 14, the applicant respectfully submits that the rejection of claim 15 is also overcome.

New claim 16 recites:

> **16.** A power amplifier for driving a load, the power amplifier further comprising a resistive element connected at an output of the power amplifier, and *in series with a DC power feed*, to maintain a low impedance at the output across a range of operational frequencies, wherein *the output is adapted for connection to a modulated power supply*.
>
> (*emphasis supplied*)

Neither Taylor nor Sivonen teach or suggest, alone or in combination, what new claim 16 recites — namely that the output is adapted for connection to a modulated power supply.

New independent claim 16 specifies that the resistive element is in series with a DC power feed to the power amplifier. Additionally, the power amplifier output of claim 16 is adapted for connection to a modulated power supply.

As discussed above in respect of claims 1, 13, and 14, the inclusion of the feature of cancelled claim 3 renders this claim novel and inventive over the cited art. Additionally, neither Taylor nor Sivonen disclose a resistive element in series with a DC power feed. As stated in the specification at page 6, lines 22-24, providing the resistive element in series with the DC feed reduces the Q factor of the unwanted parasitic resonance. Sivonen only

discloses the use of a resistive element (Rp) in parallel to reactive elements to reduce the Q of the resonator circuit, which is formed by the reactive elements and which is intentionally selective (column 3, lines 19-35). It would not therefore be obvious to the skilled person to arrive at the invention of claim 16 based on the disclosure of Sivonen.

The applicant therefore submits that new claim 16 is novel and non-obvious in view the cited art.

New claim 17 recites:

> **17.** A power amplifier for driving a load, the power amplifier further comprising a resistive element connected at an output of the power amplifier to maintain a low impedance at the output across a range of operational frequencies, wherein a reactive element is connected in series with the resistive element to form therewith a resonant circuit configured such that *the impedance of the resonant circuit lowers as the impedance of the amplifier output terminal rises*.
>
> (*emphasis supplied*)

The series resonant circuit of claim 17 is configured such that *the impedance of the resonant circuit lowers as the impedance of the amplifier output terminal increases*. Neither Taylor nor Sivonen teach or suggest, alone or in combination, what new claim 17 recites — namely, a power amplifier with a series resonant circuit so limited.

When the impedance of the output terminal of the amplifier rises due to the bias resonance, the impedance of the series resonant network lowers (page 6, lines 28-30). The series resonant network thereby compensates for the unwanted parasitic resonance, solving the stated problem. Sivonen does disclose the lowering of amplifier load impedance through the inclusion of the parallel resistor Rp; however this is not in response to an increase in amplifier output impedance (column 3, lines 36-38). The solution would therefore not be obvious to the skilled person based on the disclosures in the art.

The applicant therefore submits that new claim 17 is novel and non-obvious in view the cited art.

New claim 18 recites:

> **18.** A power amplifier for driving a load, the power amplifier further comprising *a resistive element connected at an output of the power amplifier to maintain an impedance in the range of 1 to 10 ohms at the output* across a range of operational frequencies.
>
> (*emphasis supplied*)

New claim 18 is directed toward a power amplifier wherein the resistive element connected to the output of the power amplifier maintains an impedance of 1 to 10 ohms at

the output. Neither Taylor nor Sivonen teach or suggest, alone or in combination, the maintenance of such a value of impedance at the output of an amplifier.

The range of 1 to 10 ohms is used to limit the impedance to a value not substantially higher at any particular modulation frequency from the average impedance over a range of frequencies (page 10, lines 15-19). The use of such a range is therefore specifically adapted to permit operation of the power amplifier when connected to a modulated power supply.

The applicant therefore submits that new claim 18 is novel and non-obvious in view the cited art.

35 U.S.C. 103 Rejection of Claim 9

Claim 9 has been rejected under 35 U.S.C. 103 as being unpatentable over Taylor in view of Midya et al., U.S. Patent 6,137,358 (hereinafter "Midya").

Because claim 9 is dependent on amended claim 7 and because Midya fails to cure the deficiencies of Taylor with respect to the rejection of claim 7, the applicant respectfully submits that the rejection of claim 9 is also overcome.

Request for Reconsideration Pursuant to 37 C.F.R. 1.111

Having responded to each and every ground for objection and rejection in the last Office action, applicant respectfully requests reconsideration of the instant application pursuant to 37 CFR 1.111 and requests that the Examiner allow all of the pending claims and pass the application to issue.

If there are remaining issues, the applicant respectfully requests that Examiner telephone the applicant's agent so that those issues can be resolved as quickly as possible.

Respectfully,
Martin Paul Wilson

By **/Kenneth Ottesen/**
Kenneth Ottesen
Reg. No. 54353
732-578-0103 x222

DeMont & Breyer, L.L.C.
Suite 250
100 Commons Way
Holmdel, NJ 07733
United States of America